

REMARKS

Claims 1-38 are now pending in the application. Of these, Claims 1-38 currently stand as being unpatentable over Lebold et al. (U.S. Patent No. 5,201,811) in view of numerous references under 35 U.S.C. § 103. In view of the amendments to the claims and comments made herein, Applicant traverses this rejection.

The Examiner's attention is respectfully directed to amended independent Claims 1, 24, and 34 as well as dependent Claims 35 and 36 which have been amended to better define the Applicant's invention. Specifically, the independent claims have been amended to better define the gate as an aperture defined by the core. The aperture, which is configured to function as a gate, fluidly couples the pouring basin to the cavity. The particular gate system contemplated in the present invention, specifically the gate being an aperture formed within a core, reduces the amount of eroded molding materials which enter the cavity. Further, the particular gate system according to the present invention allows for the incorporation of fusible plugs into the gating system either with or without the presence of added alloy materials which assist in the reduction of casting defects.

With respect to the Lebold reference, paragraph 12 of the Office Action Summary states that "the vertically parted mold halves define the pouring basin with a gate (i.e. entrance to the cavity defining the complex core) when in the closed position." The side patterns define a portion of the surface area gate, the turbulent flow along the side patterns specifically allows the particular particulate erosion of molding materials that the present invention contemplates reducing. Lebold does not disclose a core having a gate in the form of an aperture.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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ATTACHMENT FOR CLAIM AMENDMENTS

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The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Amended) An apparatus for casting a structure comprising:
a vertically parted sand mold assembly having a first side pattern defining a first impression and a second side pattern defining a second impression, at least one of said side patterns defining a pouring basin communicating with a sprue, and at least one of said side patterns having a core, the core defining an imprint surface and an aperture that is configured to function as a gate which fluidly couples the pouring basin to a cavity formed by the first and second impressions.

24. (Amended) An apparatus for casting a scroll component comprising:
a vertically parted sand mold assembly having a first side pattern defining a first impression and a second side pattern defining a second impression, at least one of said side patterns defining a pouring basin communicating with a sprue, and at least one of said side patterns having a core, the core defining an involute imprint surface and an aperture that is configured to function as a gate, the aperture fluidly couples the pouring basin to a cavity formed by the first and second impressions.

34. (Amended) A method of casting a scroll component comprising the steps of:

providing a mold having a vertical parting line and a first and second side mold, at least one of said side molds defining a pouring basin communicating with a sprue, the second side mold having a core, the core has an imprint surface and defines [a gate] an aperture therethrough, the [gate] core further defining a back splash;

providing a fusible plug in the [gate] aperture; and

providing molten metal into the pouring basin.

35. (Amended) The method of claim 34 wherein providing a fusible plug in the [gate] aperture, includes providing a fusible plug in the [gate] aperture which reduces the velocity of the molten metal entering the [gate] aperture.

36. (Amended) The method of claim 34 wherein providing a fusible plug in the [gate] aperture, includes providing an inoculant.